

Neural Network Enhanced Structure Determination of Osteoporosis, Immune System, and Radiation Repair Proteins, Phase I

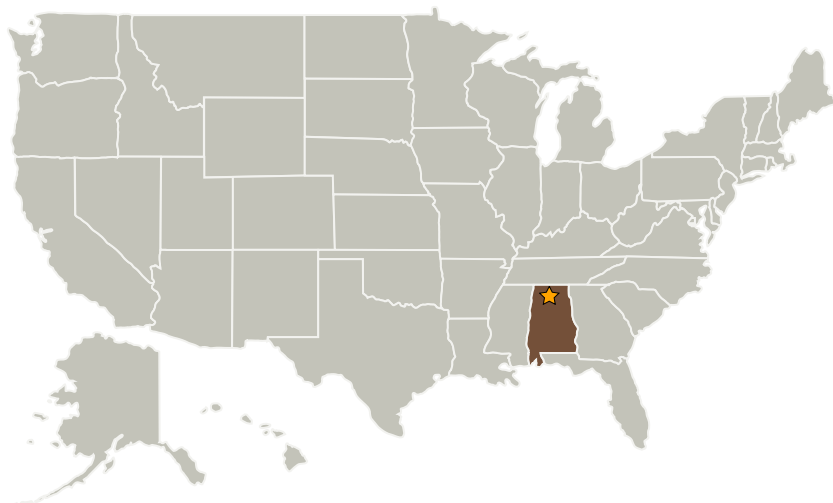
Completed Technology Project (2004 - 2004)



Project Introduction

The proposed innovation will utilize self learning neural network technology to determine the structure of osteoporosis, immune system disease, and excess radiation DNA damage target proteins that will facilitate drug development to enhance crew health in long term space flight missions. This system is innovative because: 1) the proprietary neural networks will provide a unique understanding of the often non-linear crystallization process of the targets; 2) the system will objectively utilize the osmotic second virial coefficient to identify optimal screen components; 3) a commercial predictive database will be developed that may eliminate the need for initial crystallization screening and increase the rate of structure determination thus offering tremendous commercial potential as a fee based service. This dual use innovation is applicable to subtopic B4.01 Space Commercialization because this approach will focus on the development of osteoporosis, immune system disease, and excess radiation DNA repair targets which will improve crew health on long term space missions and will provide an earth-based commercial service to drug discovery entities.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	2
Project Management	2
Technology Areas	2

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Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Diversified Scientific, Inc.	Supporting Organization	Industry	Birmingham, Alabama
InSilicor, Inc.	Supporting Organization	Industry	South Birmingham, Alabama

Primary U.S. Work Locations

Alabama

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

David Hamrick

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - TX06.5 Radiation
 - TX06.5.1 Radiation Transport and Risk Modeling